

PUBLIC FACILITIES PLAN

An Amendment To The 1983 Public Facilities Plan

Adopted By The Chesterfield County Board of Supervisors
November 8, 1995

Prepared by the Chesterfield County Planning Department

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EXECUTIVE SUMMARY

The *Chesterfield County Public Facilities Plan* is the first plan in more than ten years to comprehensively assess County public facility needs in relation to existing and future growth patterns. Its principal goal is to forecast where existing facilities should be expanded and new facilities located to best serve Chesterfield County's growing population. Specifically, this plan

- Uses population growth projections to objectively identify the number and general location of public facilities needed to serve the County's population over the next twenty years.

- Assesses the need for public facilities throughout Chesterfield. It looks at not only newly developing areas, but the facilities needs of established neighborhoods and communities.
- Provides critical guidance for the County's Capital Improvements Program and cash proffer system.
- Creates a valuable link between all County facilities plans and the Comprehensive Plan.
- Provides opportunities for the acquisition of land for facilities well in advance of their construction.

The *Chesterfield County Public Facilities Plan* quantifies the demand for parks, libraries, fire/rescue stations and schools through a detailed analysis of current and projected demand within facility service areas. Level of service goals and service area boundaries were defined in close consultation with County departments and the School Administration. The plan's recommendations specify needed facilities, general time frames and general locations. Also incorporated by reference are other detailed facility plans such as the County's *Water and Wastewater Facilities Plan*.

New facilities recommended by 2015 include:

- **Eight** fire/rescue stations;
- **Five or more** elementary schools;
- **One** middle school (replacement for Carver) and **one** large addition;
- **One** new high school and the **equivalent** of another new high school;
- **Two** regional parks and **three or more** community parks;
- **Five** new library branches and **eight** library additions.

INTRODUCTION

Purpose and Scope

The purpose of the *Public Facilities Plan* is to provide Chesterfield County citizens with adequate facilities, in the best locations, with appropriate site criteria. Specifically, the plan provides facility recommendations based on an

objective and equitable assessment of current and future needs throughout all areas of the County. Long term in nature, it fosters planning and programming of capital facilities which are supportive of the County's overall community development strategy as recommended by the County's Comprehensive Plan.

Created in concert with other County departments, the *Public Facilities Plan* recommends the general timing and location of future County facilities based on desired service levels. It is designed to function as a need's assessment supporting the establishment of specific project priorities through the annual Capital Improvement Program. A comprehensive approach integrates facility needs, siting criteria, and design issues with adopted land use plans and other planning concerns. The plan will guide the acquisition of public facility sites through the rezoning process and advance purchase or optioning. **The Public Facilities Plan does not address funding availability, debt capacity, or other financial concerns; nor does it address facility components, equipment, building design, and numerous other factors best left to the expertise of the operating departments. In addition, the location recommendations are general, and to promote flexibility in acquisition, should not be interpreted as site specific.**

This plan is one element of *The Plan for Chesterfield*, the County's Comprehensive Plan. It replaces the 1983 *Chesterfield Plan for Public Facilities*, and should be updated in five years based on new data and analysis. As with all components of the comprehensive plan, it is intended to function as a guide for decision-makers; flexibility is required when fundamental conditions change or analysis based on new data reaches differing conclusions.

Service Area vs. Countywide Facilities

The plan reflects differing levels of review for different types of facilities. A more in-depth process was undertaken in relation to certain facilities with geographic service areas -- Fire/Rescue Stations, Schools, Parks and Libraries. The plan summarizes and incorporates by reference several other detailed facility plans, for instance the *Water and Wastewater Master Plan* and the *Government Center Master Plan*.

Recommendations for new fire/rescue stations, schools, libraries, and parks through the year 2015 are based on service level goals as de-

finied in conjunction with the applicable department. As a guide to timing, recommended facilities are divided into those facilities needed to address:

- Current demand or short-term growth to the year 2000;
- Long-term growth to the year 2015; or
- Sites likely to be needed beyond the year 2015.

(Although the demand analysis does not extend beyond 2015, potential sites are identified in the plan because of the need to preserve future options through advance acquisition.)

Relationship To The Capital Improvements Program

Shorter-term facility planning is addressed by the County's annual Capital Improvement Program (CIP). The CIP proposes a specific schedule for the acquisition, development, enhancement or replacement of public facilities, usually over a five year period. It shows the arrangement of selected projects in priority order, and establishes cost estimates and anticipated funding sources. Development of the CIP occurs in conjunction with the County's annual budget process. Availability of funds is driven by the County's adherence to established debt management policies. The CIP reflects tough decisions in the allocation of resources among competing demands.

Relationship To The Comprehensive Plan And An Overall Community Development Strategy

The adoption of the *Plan For Public Facilities* as part of the County's Comprehensive Plan will provide an important implementing tool for the County's overall development strategy. Articulated through the recommendations of the Comprehensive Plan, this strategy encourages sustainable and orderly growth in support of a variety of community goals and objectives. Particularly in a rapidly growing suburban jurisdiction, **effective planning and programming of public facilities is critical to the success of the development strategy.**

A key aspect of the development strategy involves the appropriate timing and location of future land development. Map 1 illustrates three basic approaches to growth and development in the County. **Infill** areas consist of the existing urban corridor, within which there are still significant portions of vacant land. **Planned growth** areas consist of more recently developed fringe areas and large amounts of vacant land. **Deferred growth** areas consist of rural areas where development within the twenty year time horizon does not support the extension of many public facilities. The plan recommends facilities that will establish or maintain desired service levels as **infill** and **planned growth** areas develop.

Clearly Chesterfield County faces a challenge as dramatic population growth continues in the coming years and decades. Analysis of national, state, regional and local trends indicates a more modest population growth rate than the 4.8 percent per annum rate experienced during the 1980s. County population grew from 209,000 persons in mid-1990 to an estimated 232,900 persons in January of 1994. Total population is expected to exceed 267,000 by the year 2000 (a 2.8 percent growth rate for the decade), and to reach nearly 336,000 by the year 2015 (a 2 percent growth rate for the period 1995-2015).

Key Objectives of The Public Facilities Plan

The Public Facilities Plan should serve as the foundation for future decisions concerning the location and expansion of public facilities. In making these decisions, the following objectives should be considered:

- Locate new facilities to provide convenient service to the greatest number of citizens.
- Construct or expand facilities in accord with established level of service objectives.
- Help guide future growth by coordinating the location of public facilities with the recommendations of the County's Comprehensive Plan.
- Use the plan as a general guide for the County's Capital Improvements Program.
- Ensure equitable distribution of public facilities between established and newly developing parts of Chesterfield County. Consider existing facilities maintenance or replacement needs in established areas to maintain quality in older neighborhoods.
- Mitigate the impact of public facilities on adjacent planned and existing land uses.
- Acquire sites for future public facilities as soon as possible, ideally obtaining property for facilities many years before there is a need to build.
- Use the recommendations of the plan, where feasible, to develop multiple use locations (ie. joint park/library sites) or consolidated facilities (ie. consolidated high school varsity fields).
- Use the recommendations of this plan to determine whether proposed public facilities are substantially in accord with the Comprehensive Plan, as required by state law.

Methodology

Detailed demographic information provides the basis for the demand analysis included in the *Public Facilities Plan*. Key building blocks include countywide population projections in five-year increments, which are broken into 18 cohorts (age group categories). Current population figures and year 2015 projections for each of the County's 180 Traffic Zones provide the basis for detailed geographic/service area analysis. These projections were derived from a detailed analysis of numerous factors affecting development potential in each area, including the adopted land use plans, vacant land, approved zoning, environmental and other constraints, subdivision activity, and other variables.

Through demographic analysis this plan provides detailed answers to these questions:

- *What growth will occur in the County during the next 20 years?*
- *How will the future population be distributed?*
- *How will the age structure of the population change over time?*
- *What new facilities will be needed and where should they be located?*

The work diagram on the following page outlines the interactive process between Planning Department staff, other departments, elect-

ed/appointed officials and the public in the development of the *Public Facilities Plan*.

Review

The Public Facilities Plan will be reviewed periodically by the Planning Department to determine if changes in annual population projections or other factors warrant revision of recommendations.

Table 1
Projected Population Growth in
Chesterfield County

Year	Population
1990	209,300
1995	240,200
2000	267,700
2005	292,200
2010	314,800
2015	336,000

2. FIRE/RESCUE STATIONS

Analysis Highlights

- Emergency service calls are expected to increase 45 percent by 2015.
- Currently, on the average, each Chesterfield County fire/rescue station serves an area of 28 square miles and receives 942 calls per year.
- Eight new fire/rescue stations are recommended for construction by 2015.

Introduction

Fire protection and emergency medical service are indispensable services that are important to every County resident. This element of the Public Facilities Plan is mainly concerned with the planning of fire/rescue stations in order to provide effective and efficient fire protection and emergency medical response. Previous planning efforts related to fire stations include elements of the 1983 *Chesterfield Plan for Public Facilities* and the *General Plan 2000 (1977)*. The adopted 1996-2000 Capital Improvements Program for the County includes new fire facilities as well as updates to older facilities.

Existing Facilities

Currently there are 15 fire/rescue stations in the County, as displayed in Table 2. Nine stations are manned by a combination of volunteer and salaried personnel. Four stations are manned solely by salaried fire fighters, while one station is staffed solely by volunteers and another is staffed by volunteers with salaried assistance on weekends. There are also four volunteer rescue

squads operating from eight different locations. The County maintains a mutual aid agreement with the Cities of Richmond, Petersburg, Colonial Heights, and Hopewell, Prince George County, Dinwiddie County, Henrico County, and the Defense General Supply Center.

Table 2
County Fire and Rescue Facilities

Facility	Type
Chester -No. 1	Fire/Rescue
Manchester - No. 2	Fire/Rescue
Bensley - No. 3	Fire/Rescue
Bon Air - No. 4	Fire/Rescue
Midlothian - No.5	Fire/Rescue
Enon - No. 6	Fire/Rescue
Clover Hill - No. 7	Fire/Rescue
Mataoca - No. 8	Fire/Rescue
Buford - No. 9	Fire/Rescue
Wagstaff - No. 10	Fire/Rescue
Dale - No. 11	Fire/Rescue
Ettrick - No. 12	Fire/Rescue
Phillips - No. 13	Fire/Rescue
Dutch Gap - No. 14	Fire/Rescue
Airport - No. 15	Fire/Rescue
Bensley - No. 1	Volunteer Rescue
Bensley - No. 2	Volunteer Rescue
Bensley - No. 3	Volunteer Rescue
Manchester - No. 1	Volunteer Rescue
Manchester - No. 2	Volunteer Rescue
Forest View - No. 2	Volunteer Rescue
Forest View - No. 3	Volunteer Rescue
Ettrick/Mataoca	Volunteer Rescue

The Fire Department also seeks to reduce demand for fire and rescue services through a proactive fire prevention and safety program.

The program includes numerous public education activities such as the Juvenile Fire Safety Program and the Citizen CPR Program. In addition to educational programs, fire safety inspections are a key element in fire prevention. Currently there are regular inspections of the public schools as well as commercial and retail businesses; a pilot program in Midlothian involves inspection of apartment buildings for operational smoke detectors and life safety concerns, as well as the provision of smoke detectors for the underprivileged supported by local businesses.

Level of Service

The primary indicator of level of service in regard to fire protection is response time. The current average fire response time across the County is 6.3 minutes. The current average ambulance response time is 7.6 minutes. Considering the geography, road network, and density of development, this is comparable to other urbanized jurisdictions in Virginia. Response times vary considerably in rural areas of the County, as opposed to the urban corridor. On average, each fire/rescue station in the County currently serves a population of 14,375, an area of 28 square miles and a load of 949 calls per year.

Emergency Medical Services (EMS) became part of the Fire Department's mission in 1978. In 1992, EMS calls represented 67% of the Department's work load. Many communities view EMS response times as more critical than fire response times due to the life-threatening nature of these calls. 47% of emergency medical calls currently receive a response time under 6 minutes.

The goal of the Fire Department is to provide efficient and effective fire protection and emergency response serving existing and new development, achieving fire response times of 6 minutes throughout the urban corridor. Further, the goal is to respond to 90 percent of emergency medical calls in under 6 minutes.

- In accord with the County's development strategy, recognize that fire response times will vary considerably in rural areas where planned growth is beyond the 20-year time horizon.
- For infill development, consider County funding of off-site improvements to meet on-site fire flow requirements.

Findings

Many variables affect response time and the generation of fire/rescue calls by a given population. Among them are geography, road networks, age and density of the population, and

Table 3
Projected Growth in Emergency Service Calls

	1994	2000	2015
Population	223,800	267,700	336,000
Projected Calls	17,653	19,959	24,171

age and quality of the building stock. The analysis focuses on projecting future population and call loading within fire/rescue districts (primary service areas). 1000 calls per year is used as a benchmark indicator of full capacity at a fire/rescue station. A third variable, response time, also applies to the demand analysis. The Fire Department maintains exhibit-scale maps of areas meeting response time thresholds and also the tax map grids which are within the urban corridor. Because the fire/rescue system includes a mixture of county and volunteer station ownership and staffing, additional complexity is encountered in facility planning. Detailed data tables on projected population and call loading within Fire Districts are included at the end of this section.

- Sizeable geographic areas within the urban corridor currently experience fire response times in excess of 6 minutes.
- The total number of emergency service calls is expected to increase nearly 20 percent by the year 2000, and about 45 percent by the year 2015.
- Nine fire/rescue stations currently experience over 1,000 calls per year. (Six volunteer rescue squad districts also experience over 1,000 calls per year).
- Currently, the fire/rescue station districts with the highest number of calls are Bensley (2500), Dutch Gap (2464), Clover Hill (1918), and Midlothian (1890).

Table 4
Planned Fire/Rescue Area Data

Planned Stations	1992 Population	2015 Projected Population	Persons/Call	2015 Projected Calls
1995-2015				
Centerpoint	16,926	37,370	17.14	2,180
Centralia	13,071	15,623	12.06	1,295
Ashton Creek	10,900	14,565	10.26	1,420
Rivers Bend	3,423	6,680	16.06	416
Rockwood	16,143	25,722	16.54	1,555
Reams Road	13,763	14,180	13.49	1,051
Beach Road	5,684	16,424	19.63	837
Magnolia Green	1,687	20,447	19.63	1,042
Post-2015				
Rt. 288/Rt. 60	2,061	7,518		
Nash Road	1,612	6,741		
Branders Bridge	3,814	5,420		
Powwhite/Genito	1,070	1,612		
	90,154	172,302		9,796

Note: Persons/call for 2015 was derived from existing ratios for the appropriate portions of existing service areas that make up the future service areas.

- Currently, the rescue squad districts with the highest number of calls are Bensley #1 (2632), Forest View #2 (1953), Manchester #1 (1787), and Forest View #3 (1548).
- The existing Midlothian and Clover Hill fire districts are projected to account for 46% of the projected overall growth in the number of calls to the year 2015.
- A five-acre site is recommended for fire/rescue stations and will be adequate for future expansion capacity.
- Stations should be located with quick access to a major arterial. If possible, they should be located near two major arterial roads which offer both east-west and north-south travel.
- Locate new fire/rescue stations near village and mixed use centers where possible based on key site planning considerations such as access, safety and response time.
- Include a community meeting room for 50-100 persons in the design of new fire/rescue stations unless there is a similar facility available for the surrounding community.

Locational Criteria

- Fire fighting facilities and emergency medical services should be co-located or coordinated for maximum efficiency. Consider co-locating with other public facilities as well.

- Reduce land costs for new fire/rescue stations through advance acquisition.

Recommendations

The following recommendations are based on the creation of new fire/rescue service areas to meet existing as well as future demand. Priority in funding and scheduling construction of new fire/rescue stations should be given to the area where the greatest number of residents are served by response times in excess of 6 minutes. Map 2 provides general locations and timing for future fire/rescue stations.

In summary, eight new fire/rescue stations will be needed by the year 2015.

A. 1995 - 2000

Build new stations to meet existing demand:

1. **Centralia** (vicinity of Chester Road and Route 288) New service area will relieve existing Bensley and Airport fire districts. **Note: Funding for site acquisition is allocated in FY 1996 of the FY 1996-2000 Capital Improvement Program.**
2. **Ashton Creek/Walthall** (vicinity of Route 301 and Happy Hill Road) New service area will relieve existing Dutch Gap fire district as well as Chester.
3. **Centerpoint** (vicinity of Powhite and Genito). New service area will relieve existing Clover Hill and Midlothian fire districts. **Note: The site for this facility has been acquired and construction should begin in the Fall of 1995.**
4. **River's Bend** (Vicinity of Rt. 10 and I-295). This facility is recommended to provide adequate fire and emergency medical response times for the eastern peninsula, it is necessitated by facility and staffing limitations at Enon, the County's only volunteer fire/rescue station.

Build new stations to serve short-term growth:

5. **Rockwood** (vicinity of Courthouse Road and Genito Road) New service area will relieve existing Wagstaff, Manchester, Airport and Clover Hill fire districts.

B. 2000 - 2015

Build new stations to serve longer-term growth:

1. **Winterpock** (vicinity of Beach Road, east of Hensley Road) New service area will relieve growth in the existing Clover Hill fire district.
2. **Reams Road** (vicinity of Reams and Courthouse Roads) New service area will relieve growth in the existing Wagstaff, Buford, and Midlothian fire districts.
3. **Magnolia Green** (vicinity of Route 360, west of Otterdale Road) Will relieve long term growth in the existing Clover Hill fire district.

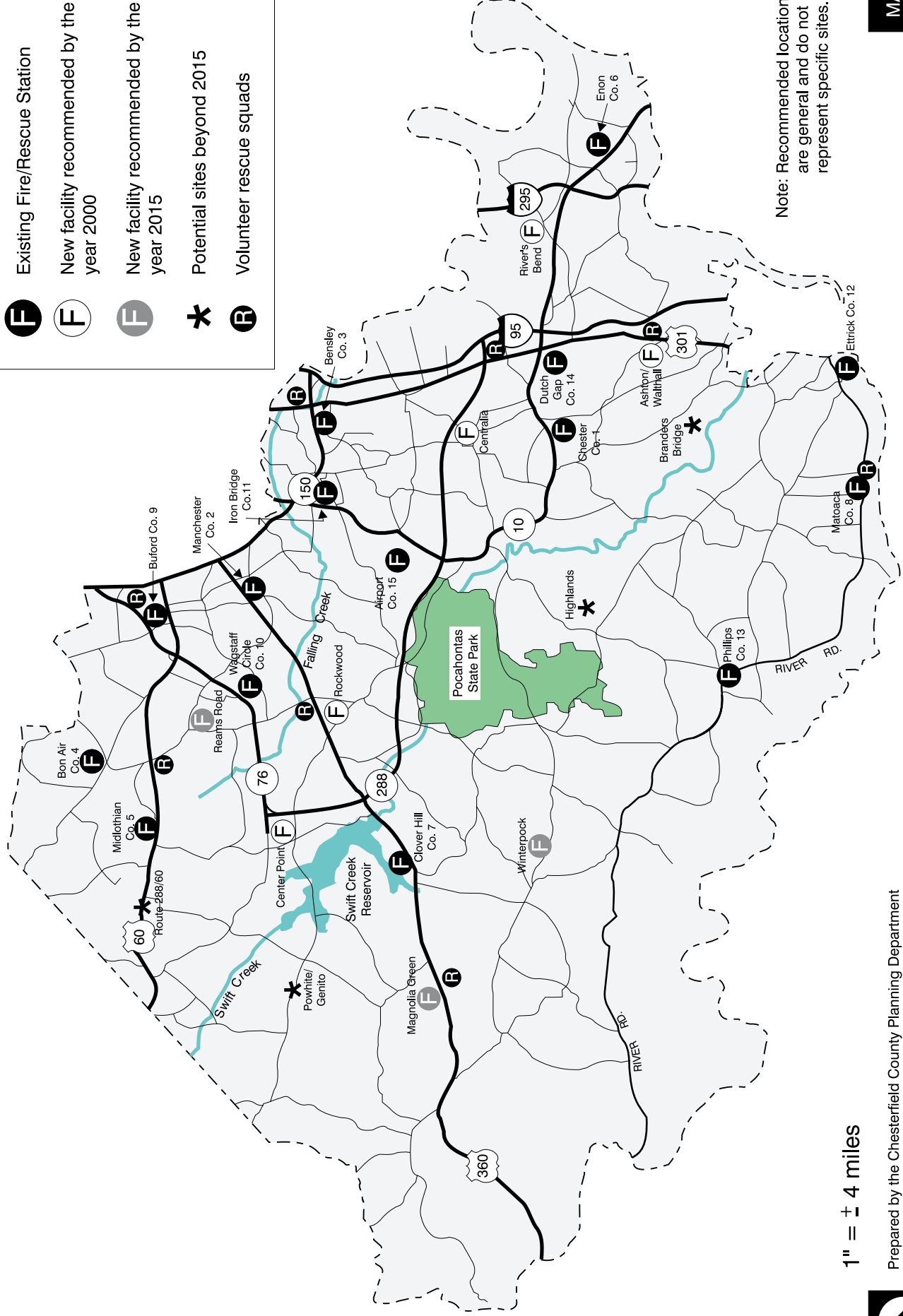
C. Post-2015

New station locations beyond 2015 (current projections do not indicate substantial population and call loading by 2015):

1. **Highlands** (vicinity of Nash Road and Woodpecker Road)
2. **Route 288/Route 60** (vicinity of future Route 288 extension and Route 60).
3. **Branders Bridge** (vicinity of future limited access highway and Branders Bridge Road).
4. **Powhite/Genito** (vicinity of future Powhite ext. and Genito Road).

FIRE AND RESCUE

- F** Existing Fire/Rescue Station
- F** New facility recommended by the year 2000
- F** New facility recommended by the year 2015
- *** Potential sites beyond 2015
- R** Volunteer rescue squads



Note: Recommended locations are general and do not represent specific sites.

1" = ± 4 miles

Prepared by the Chesterfield County Planning Department
August, 1994

3. SCHOOLS

Analysis Highlights

- Enrollment in Chesterfield County public schools has grown by almost 6,600 in the last six years to 48,178.
- Between years 2000 and 2005 countywide enrollment growth is projected to stabilize.
- Five new elementary schools, one new middle school, and one new high school are recommended for construction by 2015.

Introduction

The Chesterfield County School public school system is the third largest in Virginia and is among the 100 largest in the United States. The 1994/95 school year will begin with over 48,000 students enrolled at 54 schools. Total enrollment has increased by more than 12,500 students (over 35 percent) during the last decade. In the last six years, enrollment has grown by over 6,700 students.

Despite dramatic growth in demand for services, Chesterfield County schools consistently achieve high ratings in terms of national test scores, the

Table 6
Population and Enrollment Summary Data

	1995	2000	2015
Population	239,000*	267,700	336,000
School Enrollment	48,178	55,800	56,600

*January 1994 estimate

** March 30, 1995 total

percentage of graduates attending colleges or technical schools, and many other measures.

The School Board has recently undertaken major initiatives relating to community involvement, curriculum innovation, technology improvements, and numerous special programs.

Existing Facilities

Table 7 displays County elementary, middle and high schools, year built and program capacity. The list does not include various school annexes and storage facilities.

Level of Service

Despite the diverse geography and relatively low density of residential areas in the County, overall school utilization has historically been very high. Excess capacity in some areas is balanced against overcrowding in others through sound planning. With public input, periodic adjustments to school boundaries are made in order to improve the balance. System-wide utilization will exceed 95% during the coming year, with most schools approaching their full capacity. An enrollment level of about 90% of overall capacity would be required in order to completely meet enrollment needs without overcrowding at any schools.

Findings

Demographic analysis is fundamental in determining future school facility needs. Population projections based on a modified cohort survival methodology were used as a basis for determining future school enrollment totals for elementary, middle and high school levels. By breaking the population into 18 separate age cohorts, these projections allow a closer analysis of trends among school-age cohorts, prime child-bearing age cohorts, and others.

Geographic analysis: Traffic zone data provided a basis for working through a detailed proportional share methodology to determine future enrollment by school district. This method accounts for the shifts in population share and enrollment that will occur over time in the various areas of the County (See "Methodology for Projecting School Enrollment" at the end of this section.)

Table 7
Existing School Facilities

Year Built		Program Capacity	Year Built		Program Capacity
Elementary Schools:					
			Swift Creek	1983	770
Bellwood	1966	433	Watkins	1967	879
Bensley	1954	600	Weaver	1994	775
Beulah	1947	760	Wells	1975	625
Bon Air	1962	594	Woolridge	1990	775
Chalkley	1962	803	<i>Subtotal</i>		23,977
Clover Hill	1986	775	Middle Schools:		
Crenshaw	1987	775	Bailey Bridge	1991	1,200
Crestwood	1962	675	Carver	1948	540
Curtis	1959	695	Chester	1949	720
Davis	1964	731	Falling Creek	1966	1,080
Ecoff	1990	775	Manchester	1964	1,350
Enon	1928	601	Matoaca	1975	780
Ettrick	1967	763	Midlothian	1950	1,350
Evergreen	1987	917	Providence	1968	1,260
Falling Creek	1964	585	Robious	1970	1,235
Gates	1983	720	Salem Church	1971	1,235
Gordon	1978	761	Swift Creek	1979	1,335
Grange Hall	1931	641	<i>Subtotal</i>		12,085
Greenfield	1975	575	High Schools:		
Harrowgate	1959	640	Bird	1978	1,575
Hening	1959	620	Clover Hill	1972	1,700
Hopkins Road	1975	630	James River	1994	2,000
Jacobs Road	1987	775	Manchester	1992	2,000
Matoaca	1937	503	Matoaca	1963	820
Providence	1986	775	Meadowbrook	1963	1,350
Reams Road	1968	733	Midlothian	1984	1,750
Robious	1970	753	Monacan	1978	1,750
Salem Church	1970	770	Thomas Dale	1964	1,325
Alberta Smith	1993	775	<i>Subtotal</i>		14,270
			TOTAL CAPACITY		50,332

Findings: . Graph 1 displays projected elementary, middle and high school enrollment. A more detailed table appears on Page 12 that displays enrollment and population projections by age and school type.

The dramatic growth in school enrollment experienced during the past decade will continue in the short-term at similar annual rates. By the year 2000, however, countywide enrollment will stabilize due to the age structure of the population. This general

leveling-off trend is projected to continue through the 2015 planning horizon.

Enrollment pressure at the elementary level will remain strong during the next six years. This demand will peak at about 2000 and taper off through 2010. Some areas of the County will experience continual growth, while others will begin to experience significant excess capacity by 2005 and continuing through 2015. This excess capacity is not projected to be above 500 spaces within any one elementary cluster through the Year 2000; thus no dramatic emptying of inner suburban schools is likely within the planning period.

The middle school system currently has substantial excess capacity overall, yet overcrowding exceeds 120% at both Carver and Chester Middle schools. Demand is expected to increase gradually, peaking in the year 2005 and descending thereafter.

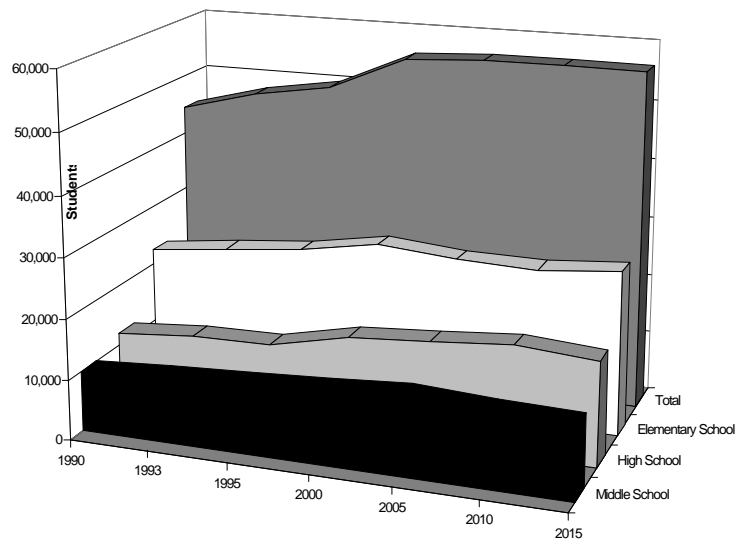
Overcrowding is now acute at Bird and Thomas Dale high schools. There is virtually no capacity available within the bordering Manchester high school district. The new James River High School will reduce pressure in the northern area of the County during the short term. High school enrollment is projected to peak at 2010, with enrollment in most districts ascending fairly evenly to that point.

Locational Criteria

The goal of the school system is to provide for the highest quality education for students throughout the County in the most cost effective manner.

- Provide new facilities to adequately and equitably serve all areas of the County. Schedule school construction to relieve overcrowding and respond to new growth when it occurs.
- Provide capacity so that no schools in the system exceed 120% capacity. A large majority of elementary, middle, and high schools should be below 100% capacity.
- Provide up-to-date learning facilities including advanced computers and related tech-

Graph 1
Enrollment Projections By School Type



nology improvements.

- Continue to coordinate school site planning and development with the Parks and Recreation Department, in order to maximize community recreational facilities.
- Develop regional athletic facilities serving multiple high schools.
- Obtain optimal locations and minimize costs through advance acquisition of suitable sites.
- Provide locations that minimize travel distance for current as well as future students.
- Middle and High Schools should be located with convenient, if not direct access to a major arterial; Elementary school sites should be located with access to a collector street.
- Elementary schools can be located within residential neighborhoods; site design should minimize impacts of the recreational areas on adjacent residences.
- Principal access to Middle and High Schools should not be through residential neighborhoods.
- Middle and High Schools should not be located within residential neighborhoods; where they are adjacent to neighborhoods, active recreation and large parking areas should be oriented away from

neighborhoods, toward more intense uses. Sports facilities and their parking areas should be buffered from nearby homes.

- The following are optimum ranges for school sizes (+/-10%) and recommended acreage for school sites:

Elementary	775 students	20 - 30 acres
Middle	1200 students	50 - 60 acres
High	1800-2000 students	70 - 100 acres

Recommendations

The following are recommendations for elementary, middle, and high school facilities. A number of alternative solutions to meet demand for high school space were analyzed and debated through the School Board's process of public participation and Capital Improvements Plan formulation. Decisions were made on facilities needed to meet demand until the year 2000. Additional analysis of alternatives will be needed to meet the following priorities past the year 2000:

1. A net of over 1800 students above capacity by **2000**. (Overages of 813 at Bird, 620 at Dale, 413 at Manchester and 314 at Meadowbrook.)
2. A net of about 2800 students above capacity by **2005**. (Overages of 976 at Bird, 736 at Dale, 557 at Manchester and 383 at Meadowbrook.)
3. A net of 3800 students above capacity by the **2010** peak in enrollment. Combined overages at Clover Hill, Midlothian and Manchester will exceed 1600.

A. 1994 - 2000

1. Elementary Schools:

- a. New school - (Cluster 8) (relieves Enon/Harrowgate) **Note: This facility is under construction and is scheduled to open in the Fall of 1995.**
- b. New school - (Clusters 5 & 6)
- c. New school - (Clusters 2 & 7)
- d. Renovate -Beulah, Hopkins Road, Reams Road, Robious, and Salem Church elementary schools. **Note: Money for construction has been allocated for this project in the FY 1996-2000 School Capital Improvement Program.**

2. Middle Schools:

- a. New Middle School - Construct a new 1200 student Carver Middle to replace current Carver and relieve Chester Middle. **Note: Money for design work has been allocated for this project in the FY 1996-2000 School Capital Improvement Program.**
- b. Renovate Chester Middle School.

3. High Schools:

- a. New High School - Construct a new high school to relieve Bird and Thomas Dale and replace Matoaca.
- b. Renovate Bird and Thomas Dale.
- c. Renovate or replace Meadowbrook, which will also relieve pressure on Manchester.

B. 2000 - 2015

1. Elementary Schools:

- a. New School - (Cluster 6) (360 West)
- b. Grange Hall Elementary School - classroom addition (150 spaces)
- c. New School - (Cluster 5) (Old Hundred/Tomahawk)
- d. Relieve Cluster #5 through redistricting to balance with excess capacity in #3 and #4; (contiguous districts only).

2. Middle Schools:

- a. No additional facilities;
- b. Redistricting to balance demand vs. capacity within Midlothian, Providence, Robious, Bailey Bridge and Swift Creek districts.

3. High Schools: To be determined

- C. **Post-2015** - Advance acquisition of sites as identified on Maps 3a, 3b, and 3c will be required to serve future growth.

METHODOLOGY FOR PROJECTING SCHOOL ENROLLMENT

Total enrollment:

Countywide enrollment projections for elementary, middle and high schools are derived from school-age cohort projections produced by the Planning Department. These numbers are derived through a modified cohort survival methodology which takes in multiple variables. The current ratio of cohort population to actual enrollment is factored into the future cohort projections to yield enrollment projections.

Example calculation: Divide the actual 1993 elementary enrollment of 23,964, by the number of persons in the age 5 - 9 cohort, 18,347. The resulting proportion, 1.306153594, is then multiplied by the 1995 cohort to yield total elementary enrollment of 25,273 for 1995, and so forth for the successive projection years. (Although 1990 Census numbers for the school-age cohorts are also shown on the table below, special 1993 cohort estimates were used to be as up-to-date as possible.)

PROJECTED SCHOOL ENROLLMENT							
	1990*	1993*	1995	2000	2005	2010	2015
Elementary	22,481	23,964	25,273	27,565	26,503	26,177	27,374
Middle	9,987	10,895	11,431	12,148	13,002	12,335	12,046
High	12,012	13,061	13,271	16,105	17,068	18,137	17,162
Total	44,480	47,920	49,975	55,818	56,573	56,649	56,582
*Actual enrollment							
PROJECTED POPULATION							
	1990**	1993	1995	2000	2005	2010	2015
C 5-9	17,871	18,347	19,349	21,104	20,291	20,041	20,958
C 10-14	16,644	19,296	20,245	21,516	23,027	21,846	21,334
C15-19	15,854	17,056	17,330	21,031	22,288	23,685	22,412
SUBTOTAL	50,369	54,699	56,924	63,651	65,606	65,572	64,704
TOTAL POP.	209,274	232,900	240,203	267,777	292,220	314,837	335,968
**1990 Census							

Enrollment Projections by School Districts:

The starting point for determining enrollment within individual school districts is a set of year 2015 population projections that were created for each of the County's 180 Traffic Zones. As with other facilities, these traffic zones were assigned to service areas (school districts); some were split and further analyzed where necessary to match school district boundaries.

The methodology involves determining what future share of total elementary, middle or high school enrollment determined above will be located within a given school district. (Assuming that school district boundaries will not change is useful for the purposes of analysis). The proportion of population within a school district and the proportion of enrollment it generates are not equal, since the neighborhoods and households that make up school districts vary greatly. In addition, the proportion of population within the different school districts will shift over time as new growth areas emerge while other suburbs age.

To determine the share of future enrollment, the current proportion of County enrollment within the school district is multiplied by the future enrollment total. This means that the variation in the number of students generated in different areas of the County is factored in to the equation. Next, the current share of County population is subtracted from the future share to determine the change in proportion of County population over time. This positive or negative change is then multiplied by the future enrollment total to yield an adjustment. This adjustment, sometimes a positive and sometimes a negative number of students, is added to the first product above to yield future enrollment. The result produces projected enrollment with accounting for future geographic shifts in population as well as current variations in enrollment generation.

Example calculation: The current proportion of total middle school enrollment at Bailey Bridge is .08996476. This proportion times the 2015 projected total middle school enrollment of 12,046 yields a subtotal of 1084. Next, the difference between the current proportion and the 2015 proportion of County population within the school district is calculated at .02668764; this figure times the projected total middle school enrollment of 12,046 yields +321. Adding 321 to the 1084 result above yields a total enrollment of 1405 for Bailey Bridge MS at the year 2015.

The calculations can also be summarized in the following equation:

$$x = (a \times b) + (n \times b); \text{ where}$$





x = projected school district enrollment

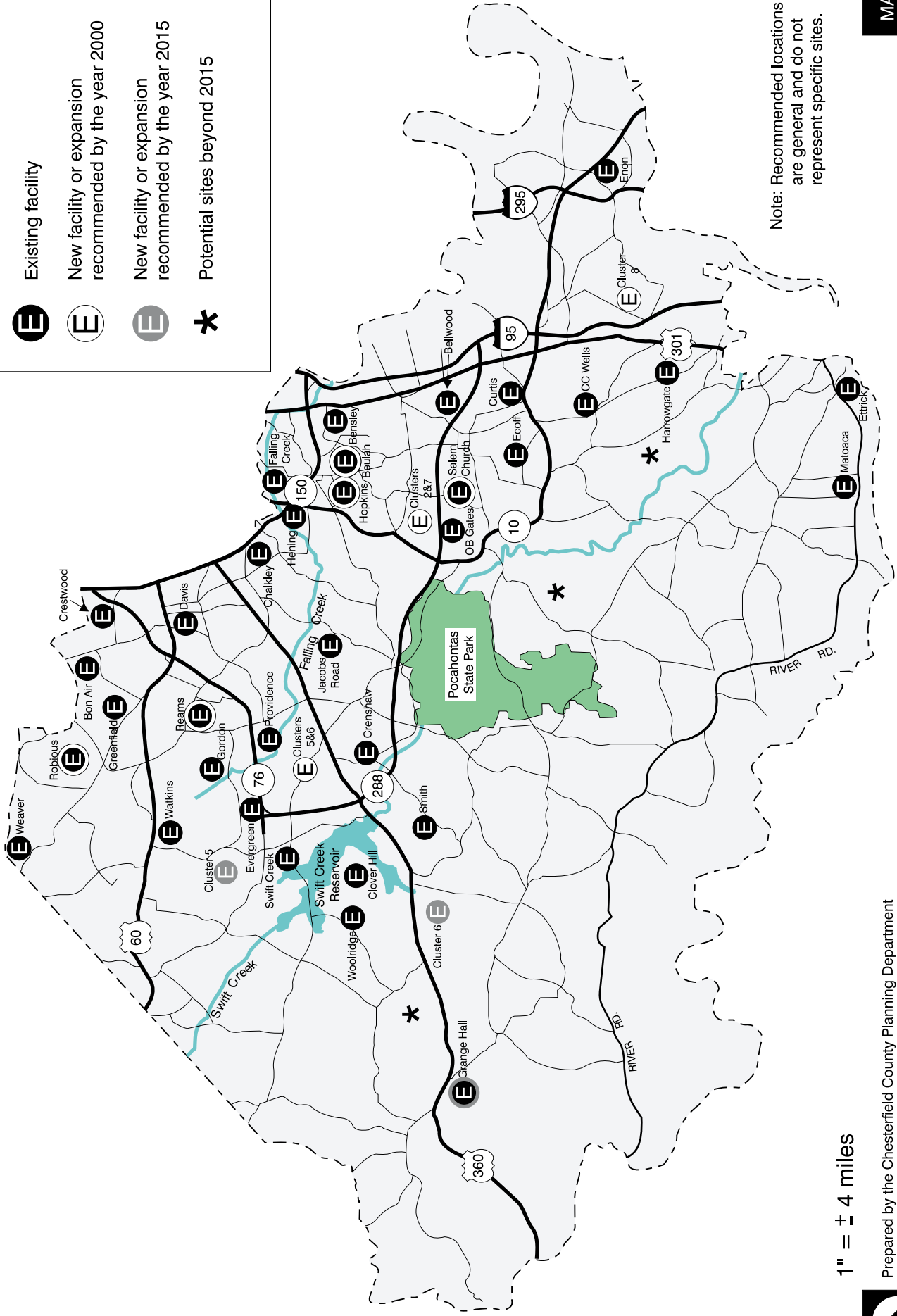
a = the current proportion of County enrollment for elementary, middle or high schools located within the given school district

b = the projected total enrollment for a certain year, for elementary, middle, or high

n = the change in the school district's population share between current and projection year

ELEMENTARY SCHOOLS

-  Existing facility
-  New facility or expansion recommended by the year 2000
-  New facility or expansion recommended by the year 2015
-  Potential sites beyond 2015







1" = ± 4 miles

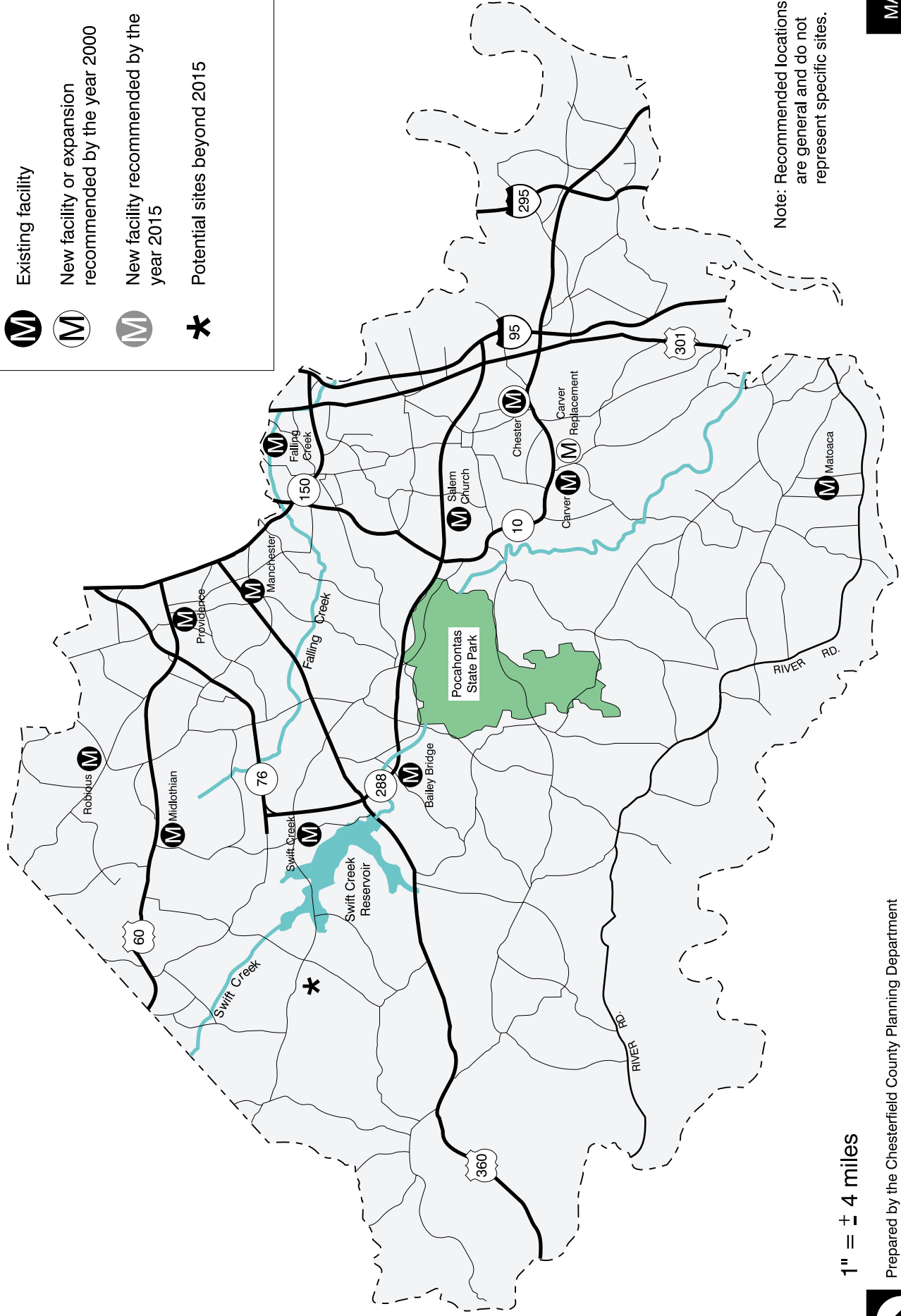
Prepared by the Chesterfield County Planning Department
August, 1994



MAP
3a

MIDDLE SCHOOLS

-  Existing facility
-  New facility or expansion recommended by the year 2000
-  New facility recommended by the year 2015
-  Potential sites beyond 2015



Note: Recommended locations are general and do not represent specific sites.




1" = ± 4 miles

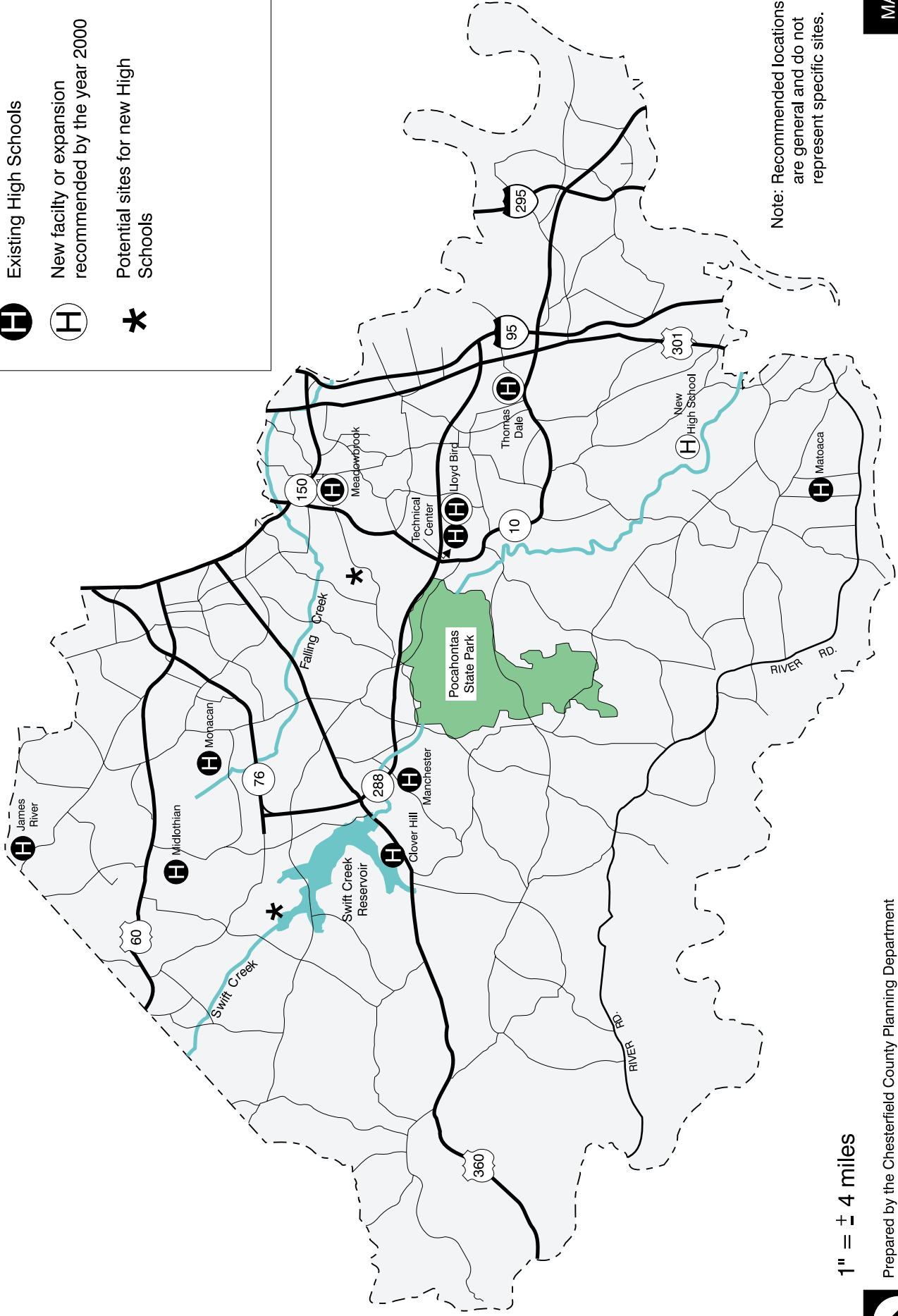
Prepared by the Chesterfield County Planning Department
August, 1994



MAP
3b

HIGH SCHOOLS

-  Existing High Schools
-  New facility or expansion recommended by the year 2000
-  Potential sites for new High Schools

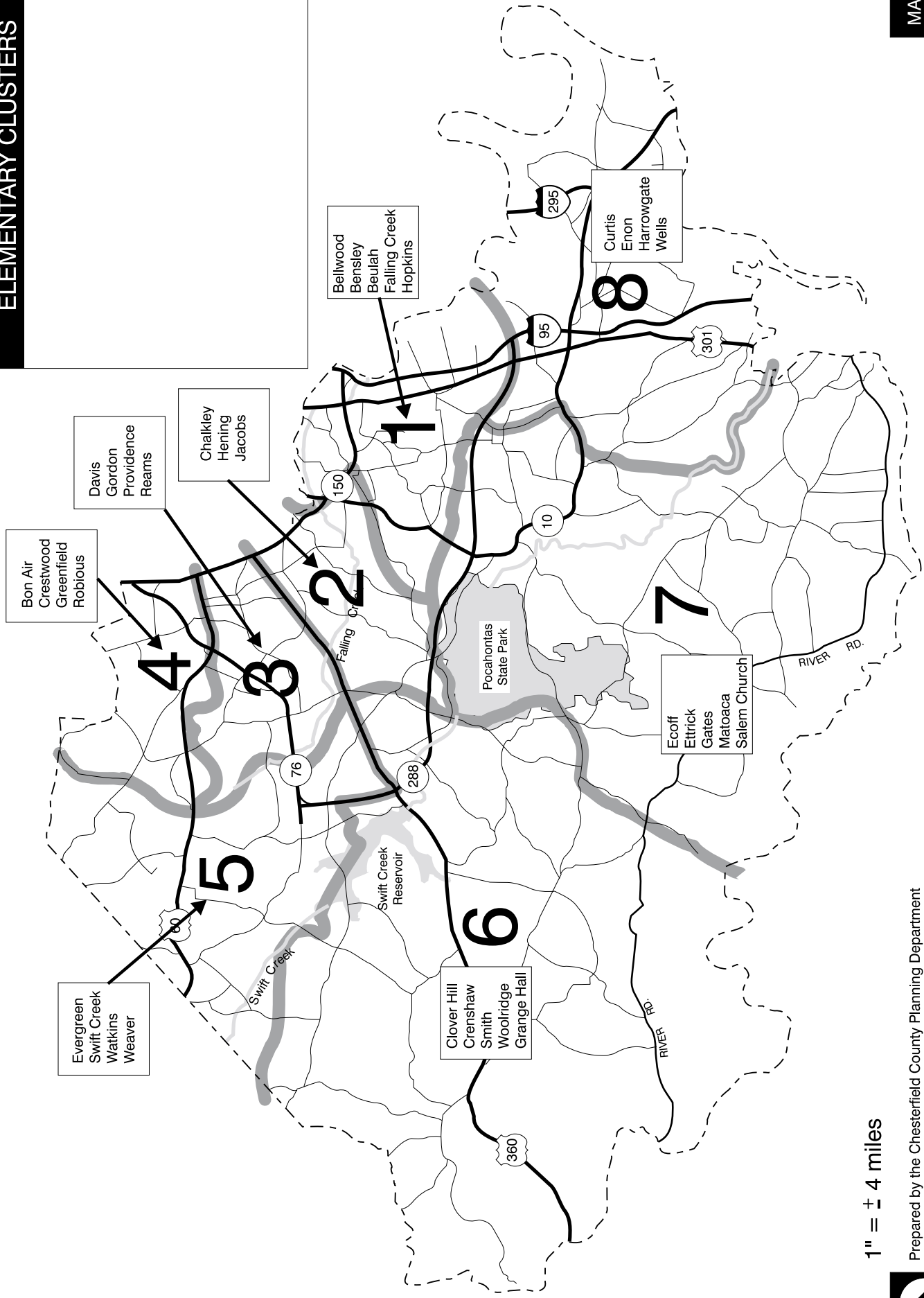


Note: Recommended locations are general and do not represent specific sites.

1" = ± 4 miles

Prepared by the Chesterfield County Planning Department
April, 1995

MAP
3c



1" = ± 4 miles

Prepared by the Chesterfield County Planning Department
August, 1994



4. LIBRARIES

Analysis Highlights

- The Chesterfield County library system currently has 116,000 square feet of gross floor space.
- There is currently an unmet demand for 18,280 square feet of space countywide. Without additional construction, this unmet demand will increase to 85,600 square feet by 2015.
- Five new libraries and expansion at eight existing facilities are recommended by 2015.

Introduction

The role of the County's library system is to bring people and information together for the purpose of education and recreation. The goal is to provide convenient access by all County residents to a wide range of information including up-to-date lending and reference materials. This is accomplished through eight branch library locations and the Central Library, which also functions as a center for library administration, technical support, special collections, and a wider range of reference materials. The County's highly educated and rapidly growing population continues to drive demand for high-quality library facilities and services.

The analysis and recommendations for library system expansion are partially an outgrowth of previous studies specific to the library system including the comprehensive Robert D. Rugg study (1986). Updates to this study were completed in 1988 (Planning Department) and 1992 (Andrea Brown).

Existing Facilities

Table 8 displays the existing library facilities and their capacity in terms of overall floor space. Included are two recently opened branches, Meadowdale and Clover Hill. The total amount of floor space in the system is 116,000 square feet.

Table 8
Existing Library Facilities

Branches	Gross Sq. Ft. of Floor Space
Bon Air	15,000
Chester	4,500
Clover Hill	15,000
Enon	4,000
Ettrick/Matoaca	8,000
LaPrade	8,000
Meadowdale	11,000
Midlothian	8,500
Central Library	42,000
Total System Capacity	116,000

Level of Service

For the purposes of the Public Facilities Plan, library floor space is the key level of service indicator; the library system has several other important level of service goals, for instance a circulation ratio of 8.0 volumes annually per person. The current overall level of service is approximately .5 square feet per capita, based on the January 1, 1994 population estimate of 232,900 and the mid-1994 capacity of 116,000 (includes new Clover Hill branch). Although this level of service is quite comparable to similar jurisdictions in Virginia, it is below the State Library Board overall standard of .6 square feet per capita, a standard that Chesterfield County strives to meet.

This plan for library system expansion is based on a detailed analysis of the distribution of current and projected population within library service areas. (Scattergrams plotted from recent patron sampling of home address verify the service area delineation used for the analy-

sis.) Based on the standard of .6 square feet per capita, the analysis allows a comparison between demand and capacity at the different branches; current and future deficiencies are identified and quantified for prioritization. Table 9 quantifies overall demand levels to the year 2015. Table 10 displays projected demand by library branch, including proposed new branches.

square feet countywide (without the addition of new space).

- By the year 2015, unmet demand for library space will increase to 85,600 square feet countywide (without the addition of new space).
- Currently there is substantial unmet demand within the LaPrade, Chester, and

Table 9
Demand for Library Space in Chesterfield County

	1992	2000	2015
Total Population	223,800	267,800	336,000
Demand for Library Space (in square feet)*	134,280	160,680	201,600
Unmet Demand with no Action (in square feet)**	18,280	44,680	85,600

*Based on the State Library Board standard which is an overall service level of .6 square feet per capita.

**Demand in excess of the current capacity of 116,000 square feet; includes new Clover Hill branch.

Note: Demand calculations consist of a modification to the State Library Board standard. The modified methodology reflects the same overall demand of .6 square foot per capita, but the distribution of that demand between branches and the Central facility has been modified to reflect Chesterfield's pattern of development. The state standard specifies one-half of the overall space be located at the central facility, which is more appropriate for central city jurisdictions with downtown core areas.

Findings

An important space consideration is the rapid evolution of electronic media and its growing role in the library system. Although significant additional space will be required in the future for computer terminals, this will likely be offset to a great degree by reduced space requirements for print media and reduced foot traffic through on-line access. The following findings are based on the analysis of library service areas and the modified State Library Board standard level of service. (See Table 8 also)

- Currently there is unmet demand for an additional 18,280 square feet of library space countywide.
- By the year 2000, unmet demand for library space will increase to 44,680

Midlothian service areas; other branches are fairly close to capacity.

- The LaPrade and Clover Hill service areas will experience the greatest growth in demand to the year 2000.

Locational Criteria

The goal of the library system is to provide County citizens convenient access to high quality library services at an overall service level of .6 square feet of floor space per capita. The following are locational objectives:

- Provide new facilities to adequately and equitably serve all areas of the County. Schedule library construction to respond to both current unmet demand and new growth when it occurs.
- Provide locations that are central to service areas, providing drive times of 15 minutes (maximum), with 10 minutes or less to most parts of a service area. (Drive times may be longer for parts of the rural [Deferred Growth] area.)
- Libraries should be located with convenient, direct access to a major arterial; preferred locations will have access to

both north/south and east/west running major arterials.

- Generally, library sites should be at least 4 acres in size, to allow for future facility expansion.

Recommendations

The following recommendations for library system expansion are based on the .6 square feet per person overall standard and a total expansion of 85,600 square feet of new floor space. They are also based on meeting the

Table 10
Library Data Including Proposed Future Capacities

Existing Branches	Current Capacity (Sq. Ft.)	Current Demand (Sq. Ft.)	Projected Demand 2000	Projected Demand 2015	Proposed Capacity 2015
LaPrade	8,000	19,622	23,957	21,145	20,000
Chester	4,500	11,815	14,425	18,342	18,000
Midlothian	8,500	12,647	15,441	18,224	18,000
Meadowdale	11,000	12,896	15,745	18,294	18,000
Clover Hill	15,000	15,797	19,287	20,497	20,000
Enon	4,000	3,362	4,104	5,911	6,000
Ettrick Mataoca	8,000	5,567	6,797	8,560	8,000
Bon Air	15,000	13,479	16,457	17,484	17,000
Proposed Branches:					
Lucks Lane				14,248	15,000
Beach/Qualla				7,370	8,000
Genito/Powwhite				8,250	10,000
CENTRAL LIBRARY	42,000	42,000	48,000	48,000	48,000
COUNTYWIDE TOTALS	116,000	134,281	160,666	201,581	206,000
ADJUSTED TOTALS**	116,000	137,185	164,213	206,325	206,000

**Adjusted totals reflect Bon Air's Richmond-based demand

- Consider library sites incorporated into village and mixed use centers, integrated with community retail and/or other public facilities. Reduced site size and shared parking facilities are appropriate where feasible.
- Reduce land costs through advance acquisition of suitable sites.

Note: Due to limitations of existing sites it may prove more feasible to construct additional branches rather than expand existing facilities.

demand within each service area as closely as possible. (Individual library branch demand is based on the modification to the state standard referenced above.) General locations are shown on Map 4.

In summary, three new branch locations will be required by the year 2015. In addition, expansions of various sizes will be needed at all of the existing branches except Ettrick/Matoaca.

The Chester and LaPrade sites will not allow expansion; replacement sites should be in the same vicinity because of centrality to their respective service areas.

A. 1994 - 2000





1. **LaPrade:** replace with a new 20,000 sq. ft. LaPrade facility to meet current service area demand. **Note: Funding for site acquisition and design are allocated in FY 1996 of the FY 1996-2000 Capital Improvement Program.**
2. **Chester:** replace with a new 15,000 sq. ft. facility at Chester Village to meet year 2000 service area demand. **Note: Funding for site acquisition is allocated in FY 1996 of the FY 1996-2000 Capital Improvement Program and design is underway.**
3. **Midlothian:** expand to 15,000 sq. ft. to meet year 2000 service area demand. **Note: This project is currently underway and is scheduled to open in the Fall of 1995.**
4. **Central:** interior build-out of 6,000 sq. ft. of unfinished space.

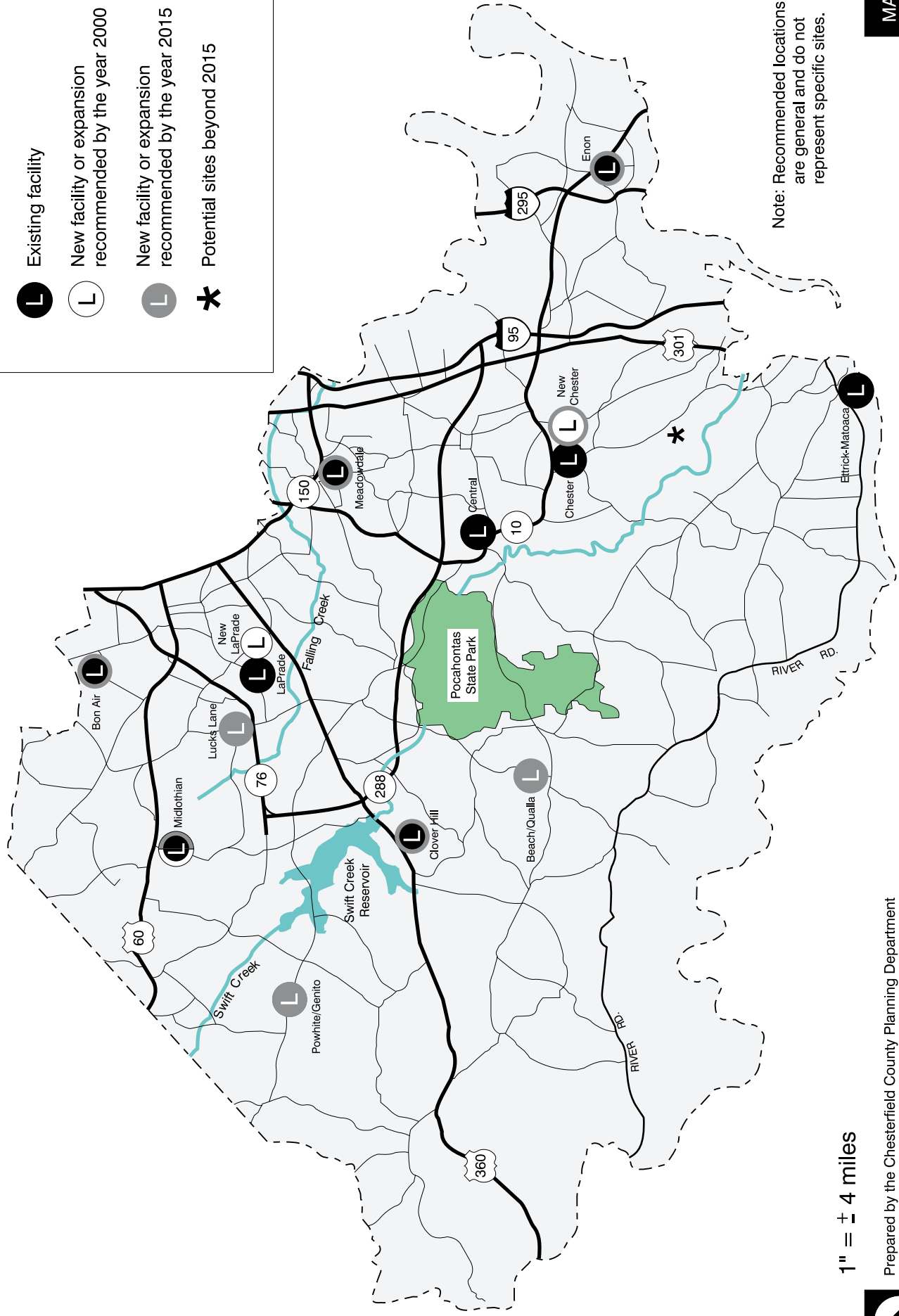
B. 2000 - 2015

1. **Lucks Lane:** (vicinity of Courthouse Rd./Lucks Lane) new branch at 15,000 sq. ft. to meet projected demand. The new service area will relieve existing Midlothian, LaPrade, Bon Air, and Clover Hill service areas. (Unmet demand is expected to reach approximately 6000 sq. ft. by the year 2000 and grow rapidly thereafter.)
2. **Meadowdale:** expand to 18,000 sq. ft. to meet projected demand. (Addition of 7,000 sq. ft.)
3. **Bon Air:** expand to 17,000 sq. ft. to meet projected demand. (Addition of 2,000 sq. ft.)
4. **Enon:** expand to 6,000 sq. ft. to meet projected demand. (Addition of 2,000 sq. ft.)
5. **Midlothian:** expand to 18,000 sq. ft. to meet projected demand. (Addition of 3,000 sq. ft.)

6. **Chester:** expand to 18,000 sq. ft. to meet projected demand. (Addition of 3,000 sq. ft.)
 7. **Beach/Qualla:** (vicinity of Beach and Qualla Roads) new branch at 8,000 sq. ft. to meet projected longer-term demand. New service area will relieve existing Clover Hill and Central Library service areas.
 8. **Powwhite/Genito:** (vicinity of Genito Road and future Powwhite Parkway extension) new branch at 10,000 sq. ft. to meet projected longer-term demand. New service area will relieve existing Midlothian and Clover Hill service areas.
 9. **Clover Hill:** expand to 20,000 sq. ft. to meet projected demand. (Addition of 5,000 sq. ft.)
- C. **Post 2015** - site as identified on Map 4 are appropriate for advance acquisition.

LIBRARIES

-  Existing facility
-  New facility or expansion recommended by the year 2000
-  New facility or expansion recommended by the year 2015
-  Potential sites beyond 2015



Note: Recommended locations are general and do not represent specific sites.

1" = ± 4 miles

Prepared by the Chesterfield County Planning Department
August, 1994

5. COMMUNITY AND REGIONAL PARKS

Analysis Highlights

- There are currently 2,082 acres of Chesterfield County owned or leased parks.
- Under current service levels, deficit levels will grow to 675 acres for regional parks and 116 acres for community parks by 2015 if no new park land is acquired.
- New regional parks are recommended for the Matoaca, Clover Hill, Southern Pocahontas Park and north/western Midlothian area.

Introduction

From the one acre Ettrick Riverside Park to the 367 acre Ironbridge Park, Chesterfield County offers a diverse selection of park facilities. While general information on the County's park system is provided, the purpose of this analysis is to focus on future location needs for the two largest levels of facilities: community and regional level parks.

A full description of the County's park and recreation facility and service needs can be found in the *1994 Chesterfield County Parks and Recreation Master Plan*. This Plan assesses recreation goals in Chesterfield County through the year 2010 and maps out a plan of action for land acquisition and facility development to serve those goals.

Existing Facilities

In 1994 there were 2,082 acres of County operated parks in Chesterfield County. Table

11 identifies them by the following major categories:

- **Regional Parks** provide active and passive recreational space and facilities for larger areas of the County, serving a wide population with sports programs and enough open space for non-directed activities such as picnicking, nature walks, etc. Ideal size: 100 to 500 acres.
- **Community Parks** provide active and passive recreational facilities and playing fields for several surrounding neighborhoods. These parks are often adjacent to schools, and include a wide range of community sports activities including indoor facilities. Ideal size: 20 to 50 acres.
- **Neighborhood Parks** provide active recreational facilities and playing fields for a residential neighborhood. Ideal size: 5 to 20 acres.
- **Special Purpose Parks** take advantage of unique recreational, cultural or environmental resources. Their location is determined by the type of resource, such as historic houses, wildlife sanctuaries, boat ramps, etc.
- **Community Buildings** are operated by the County in Bensley and Ettrick. About 586,000 square feet of indoor school space is also used by the County for recreation.

Because specific locational factors, such as the proximity of a school or the location of a historic site often effect where special purpose parks, neighborhood parks and community buildings go, this analysis focuses on future needs for regional and community parks.

Level of Service

Levels of service are quantitative measurements of the provision of public facilities, usually based on facility square footage or acres per 1000 residents. The following service level goals for parks were adopted as part of the *1994 Chesterfield County Parks and Recreation Master Plan*.

- **Countywide:** Maintain an overall standard of eight acres of County, regional and neighborhood park land for each 1000 Chesterfield County residents.

Table 11
Parks Operated By Chesterfield County

Acres		Acres	
Regional Parks		Manchester Athletic Complex	15
Huguenot Park	56	Midlothian Athletic Complex	12
Iron Bridge Park	367	Monacan Athletic Complex	10
Point of Rocks Park	188	Providence Athletic Complex	30
Rockwood Park	163	Robious Athletic Complex	29
Total	774	Woodlake Athletic Complex	19
Community Parks		Total	579
Bensley Park	13	Special Purpose Parks	
Clover Hill Athletic Complex*	106	Appomattox River Canoe Launch	5
Coalfield Soccer Complex	34	Chesdin	210
Courthouse Athletic Complex	4	Clarendon Park	15
Ettrick Park	24	Dutch Gap Boat Landing	4
Goyne Park	33	Eppington Plantation	44
Harrowgate Park	29	Ettrick Riverside Park	1
Matoaca Park	73	Falling Creek Linear Park	36
Warboro Athletic Complex*	72	Fernbrook Park	4
Athletic Facilities Adjacent to Schools		Fort Stevens Historical Park	2
Bailey Bridge Athletic Complex	30	Henricus Historical Park	32
Bird Athletic Complex	30	Robious Landing*	60
Davis Athletic Complex	10	Total	413
Greenfield Athletic Complex	6	Neighborhood Parks	316
*Under development		Total County Park Acreage	2,082

- **Regional Parks:** 4.5 acres per thousand residents; serving a four to five mile radius or less than fifteen minute driving time. (Note: For the purpose of this analysis, it was assumed that Pocahontas State Park would accommodate all County regional park passive recreation needs within a five mile radius.)
- **Community Parks:** Two acres per thousand population; serving a three to four mile radius.

Using these standards, an analysis can be made that compares the location of the County's current and projected population to adopted levels of service for regional and community parks. Existing and potential future

surpluses and deficiencies of park space are thus identified throughout the County. Table 12 highlights these identified surpluses/deficiencies.

Findings

Staff analysis of current and future population growth compared to adopted levels of service results in the following findings:

Regional Parks

- Using adopted service levels, Table 12 shows there is currently a **deficit** of 202 acres of regional park land in Chesterfield

County.

- The greatest current shortage of regional level park facilities is in the **north-western area** of the County. Huguenot and Rockwood Parks have a combined deficit of 224 acres based on the 1992 population within their service areas. Additional population growth projected for the Upper Swift Creek basin will add additional demand for regional park space in this area.
- The cost of property in the urbanized parts of the County makes it **financially difficult** to find suitable large tracts for regional and community parks. Because of their location adjacent to established residential and commercial areas, it may be unlikely that Huguenot and Rockwood Parks can be expanded.
- **Eastern and central** Chesterfield County

Community Parks

- While overall there is a surplus of community park space in Chesterfield, that space is not evenly distributed. There is currently a shortage of community level park facilities in the **central and eastern** area of the County.
- The eastern part of the County may not have a population great enough to support a new community level park until after the year 2000.
- **South-eastern** Chesterfield County currently has a surplus of community-level park space.
- By **2015**, If no additional community park facilities are built in Chesterfield County, there will be a projected deficiency of approximately 116 acres of community park

Table 12
Demand For Regional and Community Park Space in Chesterfield County

	1992	2000	2015
Population	223,800	267,700	336,000
Regional Parks			
Existing/Potential Acres	774	1,199	1,374
Acres Per 1000	3.5	4.5	2.3
Surplus/Deficit at 4.5 Acres Per 1000 Population	-202	40	-71
Community Parks			
Existing/Potential Acres	590	492*	617
Acres Per 1000	2.6	1.8	1.8
Surplus/Deficit at 2 Acres Per 1000 Population	142	-43	-55

*Assumes Coalfield Soccer Complex out of system and Matoaca Park and Clover Hill Complex reclassified as regional parks

are currently adequately served by Ironbridge and Point of Rocks Parks.

- No regional park is now close enough to effectively serve the **south-eastern** part of Chesterfield in the Ettrick/Matoaca vicinity.
- By **2015**, If no additional regional park facilities are built in Chesterfield County, there will be a projected deficiency of approximately 675 acres of regional park space.

Locational Criteria

- **Facilities:** Park facilities should be provided in a variety of locations and be diversified in order to serve the entire population of the County as equally as possible.
- **Accessibility and Compatibility:** Community and regional park sites should be easily accessible from a major arterial road and have adequate off-street

parking. Adequate transition features, such as buffers, should be provided in the design of parks to reduce potential impacts to adjoining neighborhoods.

- **Land Acquisition:** Cooperate with the County school system in all phases of new facility development.
- **Community Buildings:** Cooperative upgrades at existing school gymnasiums and joint development of future elementary, middle and high school indoor facilities should be used to meet the demand for indoor recreation facilities.

Recommendations

The following are general recommendations for the provision and location of future community and regional park facilities. General locations of proposed facilities, along with the location of existing regional and community parks, are shown on Maps 5a and 5b.

Regional Parks

A. 1994 to 2000

1. **Clover Hill Sports Complex:** Expand the recently acquired Clover Hill Sports Complex site to a 150 acre regional park.
2. **North-Western Area:** Acquire 170 acres of land in the north-western part of the County and develop 145 acres as a regional park to relieve Huguenot Park.
3. **Matoaca Park:** Reclassify Matoaca Park as a regional park and acquire 20 acres in addition to the property purchased in 1994.
4. **Pocahontas Area:** Work with the state to establish a 60 acre (eventually expandable to 100 acres) County operated regional park in the Pocahontas Park area for active recreational activities.

B. 2000 to 2015

1. **Clover Hill Regional Park:** Develop an additional 90 acres at Clover Hill Regional Park for a total acreage of 240.
2. **North-Western Area:** Develop the remaining 25 acres of park land acquired in the 1994-2000 period.

3. **Pocahontas County Park:** Expand active recreational uses at Pocahontas Regional Park to 100 acres.

4. **Matoaca Park:** Develop 20 acres acquired earlier.

C. Post 2015

1. **Pocahontas County Park:** Expand active recreational uses based on demand.

Community Parks

A. 1994 to 2000

1. **Central Area:** Develop 45 acres of community parks in the central area, possibly in conjunction with a new school.
2. **Northern Area:** Develop 70 acres of new community parks in the northern part of Chesterfield County.





B. 2000 to 2015

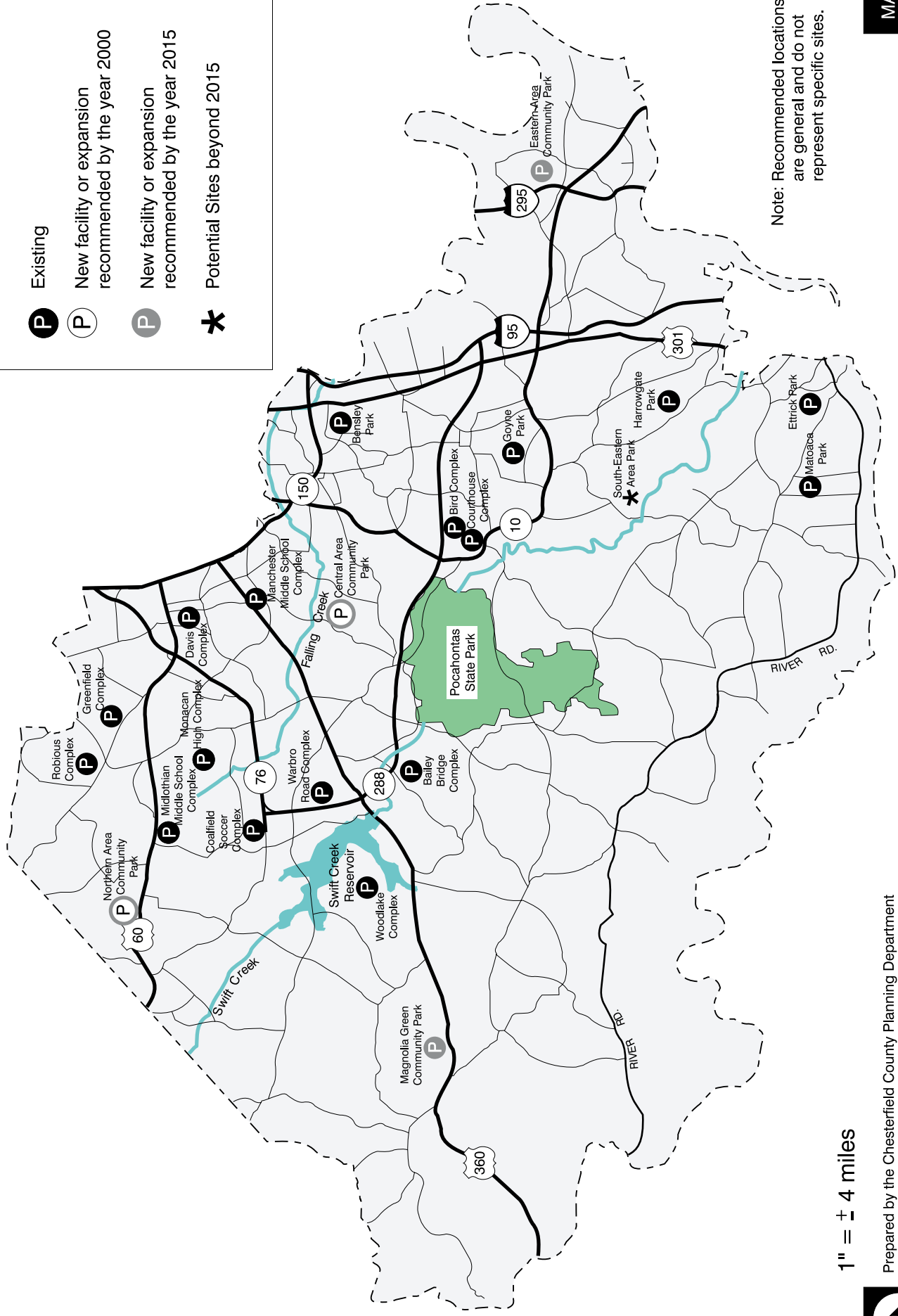
1. **Magnolia Green:** Build a 25 acre community park in the western part of the County (Duval/Otterdale Road area) to relieve Woodlake Athletic Complex.
2. **Eastern Area:** Develop a 25 acre community park in the eastern area of the County.
3. **Northern Area:** Develop an additional 50 acre community park in the northern area of the County.
4. **Central Area:** Develop 25 more acres of community park space in the Central Area.

C. Post 2015

1. **South-Eastern Area:** Acquire and develop a new community park along Swift Creek in the south-eastern part of the County.

COMMUNITY PARKS

-  Existing
-  New facility or expansion recommended by the year 2000
-  New facility or expansion recommended by the year 2015
-  Potential Sites beyond 2015






1" = ± 4 miles

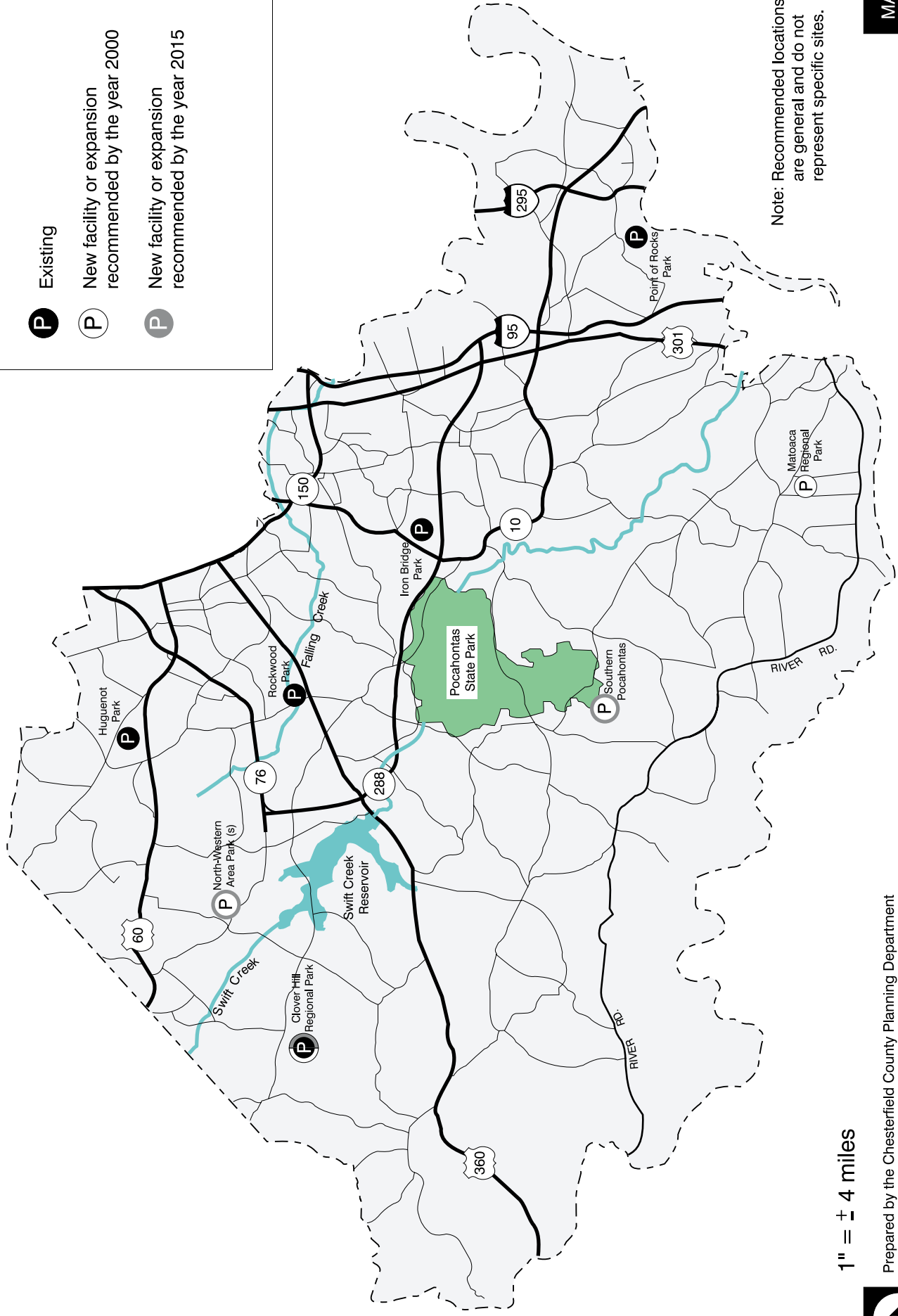
Prepared by the Chesterfield County Planning Department
August, 1994



MAP
5a

REGIONAL PARKS

-  Existing
-  New facility or expansion recommended by the year 2000
-  New facility or expansion recommended by the year 2015



Note: Recommended locations are general and do not represent specific sites.

1" = ± 4 miles

Prepared by the Chesterfield County Planning Department
April, 1995



MAP
5b

6. WATER AND WASTEWATER UTILITIES

Introduction

The Chesterfield County *Water and Wastewater Facilities Plan* (September 1992) is incorporated by reference. The document addresses countywide water and wastewater system maintenance and expansion through the year 2015. As with other elements of the Public Facilities Plan, this planning effort incorporated projected population growth and the County's land use plans in evaluating future needs. Water and wastewater system improvements are suggested, along with an implementation and capital cost plan. While the plan is based on substantial growth in the existing service area, it promotes orderly growth and efficient system expansion by avoiding the extension of water and sewer pipelines through undeveloped areas to remote new development.

The *Water and Wastewater Facilities Plan* specifies improvements designed to increase the quality and reliability of the existing system as well as growth driven improvements which are set forth in five-year increments. (Large scale maps are included with the document.) It is intended to be a dynamic plan that is responsive to change. Projected improvement schedules should change if growth does not occur as expected.

Funding of Improvements

Quality and reliability improvements will be implemented as infill occurs, generating revenue from connection fees. Improvements that are growth driven, i.e. that are needed by proposed development beyond the existing service area, should be scheduled concurrent with the proposed development. In cases when a required improvement can only be constructed if other facilities are already in place, i.e. a prerequisite improvement, the developer will be required to construct it at his/her expense. Water mains and trunk sewers needed to serve new development are designed, constructed and funded by the developer. Water storage tanks, water and wastewater pumping stations and water and

wastewater treatment plant expansions are funded through the collection of capital recovery charges. This will insure proper funding of facilities to serve new County residents through user charges.

Water System Improvements

The Swift Creek Reservoir and the Appomattox River Water Authority (ARWA) have served as the County's water supply in past years. An increasing amount of water will be purchased from the City of Richmond through a purchase agreement. The County should have sufficient water supply through 2014, based upon 27 mgd from the City of Richmond, 24.5 mgd from the ARWA, and 11.5 mgd from Swift Creek Reservoir. Additional treatment capacity should be available from ARWA and/or the City of Richmond at that point in time.

Recommended system expansion over the planning period includes new pumping stations, storage tanks, water mains, and pressure zone/service area improvements. If growth occurs as projected, approximately 96 miles of 12 through 36 inch diameter water mains will be added to the County's system by 2015.

Wastewater System Improvements

Wastewater treatment is currently provided by two County treatment plants, Falling Creek and Proctors Creek. Richmond and Petersburg city treatment plants service about ten percent of the County's wastewater volume. Scheduled improvements include modifications to improve effluent quality at the Falling Creek plant, which will continue to provide 9 mgd treatment capacity through 2015. Proctors Creek will expand capacity to 27 mgd by 1994, in addition to making discharge quality improvements. Effluent quality is currently well within permit discharge limits at both plants.

Recommended system expansion over the planning period includes new and expanded pumping stations, and conveyance system expansions. If growth occurs as projected, 47 miles of force mains and trunk sewers will be added to the system by 2015.

For more information, contact the Utilities Department, at 751-4441.

7. GOVERNMENT ADMINISTRATION

Government Center Master Plan

The Chesterfield County Government Center Master Plan, adopted in 1989, provides a long-range guide for facilities and road improvements at Chesterfield County's government center complex. The plan provides a sequencing guide and addresses the needs of all departments. Several major improvements have been completed since the plan's adoption. Map 6 displays the Master Plan, which is included in its entirety in *The Plan for Chesterfield*.

Northern Area Proposed Facilities

County departments have proposed facilities beyond those in the Master Plan, due to the distance between the courthouse complex and the large population base in the northern half of the County. Among the facilities suggested for the northern area of the county are a police substation and a vehicle maintenance garage/refueling substation. It is recommended that such satellite facilities be analyzed to document feasibility and potential cost savings. Just as important, an overall approach to the issue of centralized vs. decentralized service delivery must be developed in the near future.

Solid Waste Disposal

Due to increased federal regulation, the County no longer operates active solid waste landfills. There are no future plans to site public landfills within the County. Management and disposition of closed landfills is on-going.

Contact the General Services Department at 748-1215 for further information.

Recycling

Recycling facilities are provided through the county's General Services Department, in cooperation with the Central Virginia Waste Management Authority (CVWMA). (The

CVWMA is a public service authority formed by 13 central Virginia jurisdictions.) A curbside recycling collection program currently serves about 40,000 residential units, and is expected to expand to cover 65,000 households in the future.

Permanent recycling convenience centers (drop-off/transfer points for glass, newspaper, plastics, and metal) are located at the sites listed. No additional sites are planned.

1. County Northern Area Landfill, Warbro Road, off Genito Road.
2. County Southern Area Landfill, Landfill Road, off Route 10.
3. Cloverleaf Mall (parking lot along Route 60).
4. Huguenot Park, Robious Road.
5. Woodlake Central Park, behind Clover Hill Elementary School.
6. Winterpock Transfer Station, Black and Winterpock Roads.
7. Ettrick-Matoaca Library, River Road.

In addition to these facilities, 28 drop-off points for aluminum cans and newspapers are located at various County schools. Revenue from these collection points is returned to the PTAs at the respective schools.

8. TRANSPORTATION

Thoroughfare Plan

Adopted in 1989, the Thoroughfare Plan shows future road improvements throughout the County. This plan is not tied to a time horizon, but instead displays right of way widths, new road alignments and road extensions through the ultimate build-out of the County. For more information on the Thoroughfare Plan, as well as short range plans such as the Six-Year Road Plan, contact the county Transportation Department at 748-1037. Map 7 displays the Thoroughfare Plan, which is included at a larger scale in *The Plan for Chesterfield*.

Airport Master Plan

An updated master plan for the County Airport facility was recently completed and approved by the Federal Aviation Administration and the Virginia Department of Aviation. The *Chesterfield County Airport Master Plan Update 1993 - 2012* is hereby incorporated by reference. Map 8 displays the Airport Layout Plan, from the master plan document. The full document and related graphics are available for review by contacting the Management Services Department (748-1191).

The County Airport is designated as a General Aviation airport, providing facilities mainly for privately owned aircraft for business and personal use. It is also a designated reliever to Richmond International Airport. The designation and function of the airport are not projected to change over the planning period.

The Master Plan Update includes a variety of physical improvements to airport facilities and related removal of obstructions to instrument landing systems. The plan forecasts demand and recommends facility improvements through the year 2012. An increase in annual aircraft operations of nearly 40% is projected by 2012. Due to crosswind patterns and the high level of usage by small craft, a second runway is recommended as a long term improvement. This crosswind runway is depicted on the Airport Layout Plan; it is planned for 3500 feet in length (the existing runway is 5500 feet in length.) Other improvements concern taxiways, lighting, hangars, fuel and other storage, and automobile parking.

natural ability to mitigate visual and noise impacts.

9. ENERGY AND COMMUNICATIONS

Introduction

Energy and communications services provided to County residents are essential to the development of the community. The need for these facilities accelerates with the development of land, while appropriate sites for their construction become scarce. Communications towers, various types of transmission lines, substations, and other such facilities developed by both private and public entities should be located and designed to be compatible with the character of the community.

Location and Character

1. Co-locate facilities whenever feasible. Use existing improvements for new equipment whenever possible.
2. Locate facilities so as to minimize impacts on existing and future areas of development. Minimize locations adjacent to planned or existing residential development. Grouping facilities in industrial or remote areas is encouraged.
3. Transmission lines: Visual impact (public views) should be a key element in the evaluation of proposed facilities. Underground facilities are preferred wherever possible.
4. Provide adequate acreage for expansion, including area to maintain adequate levels of screening to accommodate expansion.
5. Human exposure to unhealthful impacts of low level electromagnetic fields from electrical transmission lines should be minimized.

Character and Extent

1. Design facilities to minimize impacts on adjacent properties.
2. Sites with existing mature vegetation or topographical features which provide screening are preferred due to their

APPENDIX

This appendix contains additional data tables for Fire and Rescue, Schools and Parks and Recreation that were used to arrive at the recommendation contained in this Plan.

Table A
Current Fire/Rescue Service Areas
Population and Call Loading

Fire Station	Current Population	Number of Calls*	Ratio of Persons per Call	Projected Population 2015	Projected Number of Calls
Clover Hill-No. 7	29,740	1,515	19.63	60,771	3,096
Dutch Gap-No.14	11,838	1,951	6.07	13,412	2,210
Airport-No. 15	15,626	1,155	13.53	24,317	1,797
Buford-No. 9	14,799	1,390	10.65	19,467	1,828
Chester-No. 1	17,827	1,049	16.99	29,182	1,718
Dale-No. 11	13,075	958	13.65	16,620	1,218
Manchester-No. 2	18,899	1,111	17.01	26,414	1,553
Bensley-No. 3	17,408	2,340	7.44	19,394	2,607
Midlothian-No. 5	21,385	1,460	14.65	49,198	3,358
Ettrick-No. 12	7,500	715	10.49	9,196	877
Bon Air-No. 4	17,775	681	26.10	21,105	809
Wagstaff-No. 10	24,885	1,296	19.20	23,206	1,209
Phillips-No. 13	4,015	272	14.76	7,576	513
Matoaca-No. 8	3,326	417	7.98	5,978	749
Enon-No. 6	5,974	372	16.06	10,134	631
Totals	224,072	16,682	214.21	335,970	24,173

*Emergency service calls received.

Notes:

1. Six minute response goal in urban corridor generates demand for stations apart from population and call loading.
2. Projected calls assumes a constant persons/call ratio, while the aging of the population and housing stock may indicate that the ratio will increase in the near future.

Table B
Projected School Enrollment

	1990*	1993*	1995	2000	2005	2010	2015
Elementary	22,481	23,964	25,273	27,565	26,503	26,177	27,374
Middle	9,987	10,895	11,431	12,148	13,002	12,335	12,046
High	12,012	13,061	13,271	16,105	17,068	18,137	17,162
Total	44,480	47,920	49,975	55,818	56,573	56,649	56,582

*Indicates actual enrollment

Table C
Projected Population

Age	1990**	1993	1995	2000	2005	2010	2015
5-9	17,871	18,347	19,349	21,104	20,291	20,041	20,958
10-14	16,644	19,296	20,245	21,516	23,027	21,846	21,334
15-19	15,854	17,056	17,330	21,031	22,288	23,685	22,412
Subtotal	50,369	54,699	56,924	63,651	65,606	65,572	64,704
Total Population	209,274	232,900	240,203	267,777	292,220	314,837	335,968

* 1990 Census

Table D
Elementary School Enrollment Projections

Clusters	Current Capacity	1994	+ or -	2000	+ or -	2005	+ or -	2010	+ or -	2015	+ or -
1	3,008	2,945	63	3,264	-256	2,962	46	2,751	257	2,696	312
2	2,198	2,186	12	2,684	-486	2,621	-423	2,629	-431	2,791	-593
3	3,000	3,009	-9	3,180	-180	2,855	145	2,619	381	2,529	471
4	2,597	2,424	173	2,754	-157	2,443	154	2,211	386	2,101	496
5	3,341	2,950	391	3,735	-394	3,838	-497	4,035	-694	4,474	-1,133
6	3,741	3,639	102	4,436	-695	4,585	-844	4,846	-1,105	5,399	-1,658
7	3,531	3,348	183	3,994	-463	3,864	-333	3,839	-308	4,038	-507
8	2,561	3,079	-518	3,518	-957	3,335	-774	3,247	-686	3,346	-785
Totals	23,977	23,580	397	27,565	-3,588	26,503	-2,526	26,177	-2,200	27,374	-3,397

Negative numbers represent projected students over current 100% capacity

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8
Bellwood	Chalkley	Davis	Bon Air	Evergreen	Clover Hill	Ecoff	Curtis
Bensley	Hening	Gordon	Crestwood	Swift Creek	Crenshaw	Ettrick	Enon
Beulah	Jacobs	Providence	Greenfield	Watkins	Smith	Gates	Harrowgate
Falling Creek		Reams	Robious	Weaver	Woolridge	Matoaca	Wells
Hopkins					Grange Hall	Salem Church	

Table E
Middle School Enrollment Projections

	Capac ity	1994	+ or -	2000	+ or -	2005	+ or -	2010	+ or -	2015	+ or -
Bailey Bridge	1,200	1,119	81	1,206	-6	1,366	-166	1,367	-167	1,405	-205
Carver	540	690	-150	798	-258	851	-311	804	-264	781	-241
Chester	720	977	-257	957	-237	997	-277	920	-200	873	-153
Falling Creek	1,080	1,143	-63	1,102	-22	1,125	-45	1,016	64	942	138
Manchest er	1,350	1,004	346	1,129	221	1,220	130	1,168	182	1,152	198
Matoaca	780	574	206	647	133	680	100	634	146	607	173
Midloth- ian	1,350	1,243	107	1,561	-211	1,769	-446	1,822	-472	1,895	-545
Providenc e	1,260	1,001	259	983	277	968	292	838	422	741	519
Robious	1,235	1,143	92	1,218	17	1,219	16	1,077	158	974	261
Salem Church	1,235	1,094	141	1,282	-47	1,380	-145	1,318	-83	1,295	-60
Swift Creek	1,335	1,083	252	1,267	68	1,401	-66	1,372	-37	1,381	-46
Totals	12,085	11,071	1,014	12,148	-63	13,002	-917	12,335	-250	12,046	39

Negative numbers represent projected students over current 100% capacity

Table F
High School Enrollment Projections

	Capac ity	1994	+ or -	2000	+ or -	2005	+ or -	2010	+ or -	2015	+or -
Bird	1,575	2,008	-433	2,388	-813	2,551	-976	2,734	-1,159	2,608	-1,033
Clover Hill	1,700	1,455	245	1,693	7	1,899	-199	2,127	-427	2,117	-417
James River	2,000	1,452	548	1,967	33	1,955	45	1,941	59	1,707	293
Manchest er	2,000	2,004	-4	2,413	-413	2,557	-557	2,717	-717	2,571	-571
Matoaca	820	659	161	867	-47	891	-71	917	-97	839	-19
Meadow- brook	1,350	1,380	-30	1,664	-314	1,733	-383	1,809	-459	1,682	-332
Midlothian	1,750	1,347	403	1,642	108	1,937	-187	2,267	-517	2,343	-593
Monacan	1,750	1,529	221	1,526	224	1,484	266	1,435	315	1,223	527
Thomas Dale	1,325	1,622	-297	1,945	-620	2,061	-736	2,190	-865	2,072	-747
Totals	14,270	13,456	814	16,105	-1,835	17,069	-2,799	18,137	-3,867	17,162	-2,892

Negative numbers represent projected students over current 100% capacity